

BIBLIOGRAPHICAL RECORD.

Authors and societies are requested to forward their works to the editors as soon as published. The date of publication, given in brackets [], marks the time at which the work was received, unless an earlier date of publication is known to recorder or editor. Unless otherwise stated each record is made directly from the work that is noticed.

Corrections of errors and notices of omissions are solicited.

Aldrich, C: Value of the house wren as an insect destroyer. (Amer. nat., April 1881, v. 15, p. 318-319.)

The house wren [*troglodytes aedon*] should be encouraged to build its nest about our houses. *G: D.* (2485)

American association for the advancement of science—Entomological club—[*Boston (Mass.) meeting* (1880)]. Annual meeting. (Can. entom., Sept. 1880, v. 12, p. 161-174.)

Contains S: H. Scudder's "Problems in entomology" [Rec., 2181] and abstracts of other addresses. *G: D.* (2486)

[**Ants. Notes on.**] (Free religious index, 10 March 1881, v. 12, p. 440, col. 3, 10 cm.)

Notes from J: Lubbeck on means of communication and other habits of ants. *G: D.* (2487)

Aquatic sphinx larva (An). (Amer. nat., Feb. 1881, v. 15, p. 151.) (Separate (General notes; entomology). from: Amer. nat. Feb. 1881, p. 151.)

Brief abstract of H. A. Hagen's "On an aquatic sphinx larva" (Psyche, Sept. 1880, v. 3, p. 113) [Rec. 2502]. *G: D.* (2488)

[**Bees on *gerardia pedicularia.***] (Bull. Torrey botanical club, Nov. 1880, v. 7, p. 113.)

Statement, on authority of the club, that *bombus*, in gathering nectar from flowers of *gerardia pedicularia*, never enter the mouth of the corolla, but perforate the corolla at its base. *W: T.* (2489)

Bell, James Thompson. How to destroy cabinet pests. (Can. entom., July [Aug.] 1877, v. 9, p. 139-140.) [Rec., 1205].

Reprint. (Ann. rept. entom. soc. Ontario, for 1877, 1877, p. 18.)

Successful use of a mixture of potassic cyanide (KCN) and sulphuric acid (H₂SO₄). [The hydrocyanic acid vapor generated by this mixture is a very dangerous poison, and should never be used except by an experienced chemist.] *G: D.* (2490)

Bennett, Alfred W. Fertilization of the bee orchis [*ophrys apifera*]. (Nature, 20 July 1871, v. 4, p. 222-223, 6 cm.)

Confirms Darwin's observations on the self-fertilization of the flowers, which had not been visited by insects. *W: T.* (2491)

[**Blatta orientalis.**] (Journ. applied sci., June 1881, v. 12, p. 92, 3 cm.)

Increased use in pharmacy. *G: D.* (2492)

[**Bombyx quercicus.**] (Journ. applied sci., May 1881, v. 12, p. 76, 5 cm.)

Notes the discovery of this silkworm in Nevada. *G: D.* (2493)

Böttner, Hermann. Der Bienenfreund. Ein einfacher leicht verständlicher Unterricht in der Bienezucht. Durch 92 in den Text gedruckte Abbildungen erläutert. 2te verbesserte Auflage. Halle a. d. S., Otto Hendel, 1880. t.-p. cover. 8+384 p. 22×15, t 17×10.2. pap., 4 M.

A general illustrated work on apiculture. *G: D.* (2494)

Bug as an element in food (The). (Springfield [Mass.] d. republican. 21 Feb. 1879, p. 4, col. 3-4, 35 cm.)

Editorial notice of E. R. Leland's "Mites, ticks, and other acari" (Popular sci. mo., Feb. 1879, v. 14, p. 502-513) [Rec., 2521], with quotations, to which are added further notes in regard to mites in brown sugar. *G: D.* (2495)

Bunker, Robert. Hints on collecting, breeding and preserving insects. (Trans. Rochester soc. nat. sci., no. 1.) Rochester, N. Y., Sept. 1880. 12 p., 23×15, t 17.5×10.1.

Describes briefly the habits of different genera of butterflies, the construction of collecting-nets, methods of attracting insects by "sugar" and otherwise, of rearing insects from collected eggs and larvae, and of killing, pinning and preserving them; remarks on giants, dwarfs and deformities. [Defective article, containing many typographical errors.] *B: P. M.* (2496)

Caspari, Robert. Ueber die Nektarien der *Stipulae* von *sambucus racemosus* und *nigra*. (Bot. Zeitung, 29 Sept. 1848, v. 6, c. 681-687.)

The nectar of these glands is gathered by ants. *W: T.* (2497)

Cassino, S: Edson. The naturalists' directory. . . . 1877 [Rec., 1159].

Rev. (Entom. Nachrichten, 15 April 1878, Jahrg. 4, p. 111.) *G: D.* (2498)

Cassino, S: Edson, *ed.* The naturalists' directory for 1880. Containing the names, addresses, special departments of study, etc., of the naturalists, chemists, physicists, astronomers, etc., etc. Also a list of the scientific societies, of scientific periodicals, and the titles of scientific books published in America, from July 1, 1879, to Oct. 1, 1880. Boston, Cassino, 1880. t.-p. cover, t.-p.. 8 + 152 + p.. 20×14, t 14.2 × 8.5. pap.. \$1.00.

Rev. (Amer. bookseller, 1 Jan. 1881. v. 11, p. 14.)

Crit. rev., by J: S. K[ingsley]. (Amer. nat., Jan. 1881, v. 15, p. 42-43.)

Addresses of persons, with specialties mentioned, unenumerated, arranged by states; 555 persons said to make entomology a specialty; 5 entomological societies mentioned. Advertisements; no index.

B: P. M. (2499)

Darwin, C.: see HENSLOW, G.; Note on the structure of *indigofera*... [Rec., 2429].

Gosse, Philip H: The Canadian naturalist. A series of conversations on the natural history of Lower Canada. Lond., 1840. 12 + 372 p., 22×12, t 14.5 × 8. il.

Contains very many original observations on insects, scattered through the volume. For an index to the notes on butterflies, see PSYCHE, v. 3, p. 245-247.

S: H. S. (2500)

Gosse, Philip H: Letters from Alabama (U. S.), chiefly relating to natural history. Lond., 1859. 12 + 306 p.. 17×10.5. t 13.5 × 7.5. il.

Contains very many original observations on insects, scattered through the volume. For an index to the notes on butterflies, see PSYCHE, v. 3, p. 245-247.

S: H. S. (2501)

Hagen, Hermann August. On an aquatic sphinx larva. (Psyche, Sep. [15 Dec.] 1880, v. 3, p. 113.)

Abstract, entitled "An aquatic sphinx larva." (Amer. nat., Feb. 1881, v. 15, p. 151.) (Separate [General notes: entomology], from Amer. nat. Feb. 1881, p. 151.)

Aquatic habits of larva of an undescribed species of *philampelus*, feeding on floating leaves of *nymphaea*; list of the 6 described American species of *philampelus*.

B: P. M. (2502)

Hagen, Hermann August. Beitrag zur Kenntniss des Tracheensystems der Libellen-Larven. (Zool. A. zeiger, 5 April 1880. jahrg. 3, p. 157-161.)

Crit. rev. of a part of J. A. Palmén's "Zur Morphologie des Tracheensystems" ... [Rec., 2588].

G: D. (2503)

Insect locomotion. (Amer. nat., April 1881, v. 15, p. 325.)

Notice of G. Carlet's studies upon locomotion of insects and spiders.

G: D. (2504)

Johnson, James Smith. On *hyphantria tex-tor*. (Can. entom., Jan. 1881, v. 13, p. 18.)
Biological notes. *G: D.* (2505)

Keferstein, Adolf. Betrachtungen über die Entwicklungsgeschichte der Schmetterlinge und deren Variation. Erfurt, Carl Villaret, 1880. t.-p. cover, 116 p., 21×14.5, t 17×10.5.

Rev., by F. Katter. (Entom. Nachrichten, 1 July 1880, jahrg. 6, Lit. Rev., p. 54.)

A collection of peculiarities of the eggs, larvae, pupae and imago of lepidoptera, with citations of the authorities on which many of the statements rest.

G: D. (2506)

Kellicott, D: Simons. The larva of *calocala unijuga*. (Can. entom., Feb. 1881, v. 13, p. 38-39.)

Description of larva of *c. unijuga* found on *populus canadensis*. *G: D.* (2507)

Kellicott, D: Simons. Observations on several species of *aegeriadae* inhabiting the vicinity of Buffalo, N. Y. (Can. entom., Jan. 1881, v. 13, p. 3-8.)

Biological notes on *aegeria tricornata*, *a. pini* (new species), *a. pictipes*, *a. accrui*, *a. pyri*, *a. tipuliformis*, *a. exitiosa* and *trochilium denudatum*. *G: D.* (2508)

K[ingsley], J: Sterling. The naturalists' directory for 1880. (Amer. nat., Jan. 1881. v. 15, p. 42-43.)

Crit. rev. of S: E. Cassino's "The naturalists' directory for 1880" ... [Rec., 2499]. The review is not entomological. *G: D.* (2509)

Kirkpatrick, J. Honey bees killed by pollen. (Amer. nat., Apr. 1869, v. 3, p. 109, 6 cm.)

States that hive bees encumbered with pollen masses of *asclepias* are ejected from the hive by the other workers, and allowed to starve; also records the death of small flies and moths that are caught by the glands but are too small to remove the *pollinia*. *W: T.* (2511)

[Krancher, L.] Höchst erfreuliche Nachrichten. (Deutsch. Bienenfreund, 1 Jan. 1881, jahrg. 17, p. 3-4.)

Quotes letter (dated, Cypress, 13 Dec. 1880) from Frank Benton in regard to his (Benton's) proposed trip to India and the East Indian islands to study the varieties of bees in those regions, and, if the races are found good, to import them into America. Remarks of the editor (L. Krancher) of the *Deutsch. Bienenfr.* upon the subject. *G: D.* (2511)

Krancher, Oskar. Der Bau der Stigmen bei den Insecten. (Zool. Anzeiger, 29 Nov. 1880, jahrg. 3, p. 584-588.)

Notice. (Amer. nat., April 1881, v. 15, p. 320.)

Different forms of stigmata classified, their location, tracheal valves and their structure; stigmata of no great morphological value, but show adaptation to environment. *G: D.* (2512)

Lancelevée, T. Une chasse intéressante. (Feuille des jeunes naturalistes, 1 Nov. 1880, an. 11, p. 13.)

Fleeces of wool from Australia contain large numbers of insects in good condition for collections.

G: D. (2513)

Latzel Robert. Beitrag zur Kenntnis der Geophiliden. (Zool. Anzeiger, 1 Nov. 1880, jahrg. 3, p. 546-547.)

Notes on *himantarium* and *notiphilus*; describes a new genus, *notiphilodes* based on *notiphilus maximiliani* from Mexico.

G: D. (2514)

LeConte, J.: Lawrence. On lightning bugs. (Can. entom., Sept. 1880, v. 12, p. 174-184.)

Considerations upon those *lampyridae* and lampyrid larvae which emit light; their classification, the nature, causes, and uses of their light.

G: D. (2515)

Leggett, W: H. Fertilization of *rhexia virginica*, L. (Bull. Torrey bot. club, Sept. 1881, v. 8, p. 102-104, 2 fig.)

Describes the structure of the flower, and its fertilization by *bombus*. Also notes the behavior of *bombus* while collecting pollen on *cassia marilandica*.

W: T. (2516)

Leggett, W: H. Grasshoppers. (Bull. Torrey bot. club, Oct. 1874, v. 5, p. 41, 7 cm.) [Rec., 145 d.]

Records these insects as resorting to the flowers of *hemerocallis fulva*, L., for shelter at night, their occasional inability to escape after the flowers have closed about them, and their consequent death.

W: T. (2517)

Leggett, W: H. Honey bee killed by *asclepias* pollen. (Amer. nat., Sept. 1869, v. 3, p. 388-389, 12 cm.)

Notes the manner in which numbers of pollen masses are removed by a bee, which finally becomes so loaded as to be unable to escape from the last flower visited. States also that hive bees on a given visit to hyacinths confine themselves to flowers of a given color.

W: T. (2518)

Leggett, W: H. Imitation. (Bull. Torrey bot. club, Nov. 1870, v. 1, p. 43, 3 cm.)

Describes the capture of a wasp by a yellow spider that lay concealed among the flower-heads of a *solidago*.

W: T. (2519)

Leggett, W: H. Imitation. (Bull. Torrey bot. club, Aug. 1871, v. 2, p. 32, 4 cm.)

States that the central purple flower of *daucus carota* serves as a screen for one or more similarly colored small spiders.

W: T. (2520)

Leland, E. R. Mites, ticks and other acari. (Popular sci. mo., Feb. 1879, v. 14, p. 502-513.)

Notice, entitled "The bug as an element in food." (Springfield [Mass.] d. republican, 21 Feb. 1879, p. 4, col. 3-4, 35 cm.)

Presence of insects in food. G: D. (2521)

Lendenfeld, R. Ueber den Flug der Libellen. Vorläufige Mittheilung. (Zool. Anzeiger, 10 Jan. 1881, jahrg. 4, p. 23-24.)

How libellulidae fly. G: D. (2522)

[**Leucania unipuncta.**] (Springfield [Mass.] d. republican, 1880: 8 June, p. 8, col. 2, 5 cm.; 11 June, p. 6, col. 5, 1 cm.; 12 June, p. 5, col. 3, 4 cm.; 12 June, p. 5, col. 4-5, 5 cm.; 14 June, p. 5, col. 4-5, 8 cm.; 17 June, p. 6, col. 6, 1 cm.; 18 June, p. 6, col. 2, 2 cm.; 19 June, p. 4, col. 1, 5 cm.; 21 June, p. 6, col. 1, 3 cm.; 22 June, p. 5, col. 5, 2 cm.; 22 June, p. 6, col. 5, 1 and 3 cm.; 24 June, p. 4, col. 4, 1 cm.; 24 June, p. 6, col. 6, 1 cm.; 25 June, p. 6, col. 5, 1 cm.; 26 June, p. 5, col. 3, 1 cm.; 26 June, p. 6, col. 5, 1 cm.; 28 June, p. 6, col. 5-6, 8 cm.; 28 June, p. 6, col. 6, 1 cm.; 29 June, p. 6, col. 6, 4 cm.; 30 June, p. 6, col. 5, 1 cm.; 1 July, p. 6, col. 5, 1 cm.; 7 July, p. 6, col. 5, 1 cm.; 8 July, p. 6, col. 2, 2 cm.; 8 July, p. 6, col. 6, 1 cm.; 24 July, p. 6, col. 6, 1 cm.; 3 Sept, p. 3, col. 2, 1 cm.)

Items which note the appearance of the "army worm" in parts of Nova Scotia, Me., N. H., Vt., Mass., Conn., N. Y., N. J., and Pa.; and notes upon their devastations. G: D. (2523)

Lichtenstein, Jules and Valéry Mayet.

Étude sur le gribouri ou écrivain de la vigne, *cryptocephalus vitis* Geoffroy, aujourd'hui genre *adoxus* Kirby. Montpellier, 1879, 12 p., 22×14, t 16×9.

Rev. (Entom. Nachrichten, 15 Oct. 1879, jahrg. 5, p. 271.)

Figures and describes larva and pupa of *adoxus vitis*; habits and remedies. G: D. (2524)

Lichtenstein, Jules. Manuel d'entomologie à l'usage des horticulteurs du midi de la France. Extrait des Annales de la société d'horticulture et d'histoire naturelle d'Ille-rault. Montpellier, 1872. t.-p. cover, 83 p., 23×14.5, t 16.5×9.

A brief general work on entomology. G: D. (2525)

Lockwood, S: Notes on the elm-tree leaf-beetle, *galeruca xanthomelaena*. (Amer. nat., March 1881, v. 15, p. 242-244.)

Notes on *g. xanthomelaena* and its ravages on elm [*ulmus*] in N. J.; its mode of hibernation in houses. G: D. (2526)

[**Locusts as sources of chemicals.**] (Psyche advertiser, Mar.-Apr. [Sept.] 1878, p. 8.)

Formic acid and an oil, calopten, can be made from *caloptenus*. Same statements are made under title "Nützen aus Heuschrecken" (Entom. Nachrichten, 1 Nov. 1878, jahrg. 4, p. 287.) G: D. (2527)

Lubbock, Sir J.: On British wild flowers considered in relation to insects. With numerous illustrations. Lond., Macmillan and Co., 1875. 186 p., 18×12, t 15×8.5: 130 fig.

"Germ. tr., by A. Passow, entitled 'Blumen und Insecten in ihrer Wechselbeziehung dargestellt. Nach der 2e Auflage.' Berl., Bornträger, 1877. 8vo."

Rev., by J. B., under full title. (Journ. of botany, 1875, v. 13, n.s., v. 4, p. 157.)

Rev. of Germ. tr., by [Ernst] K[rause]. (Kosmos, June 1877, v. 1, p. 275, 18 cm.)

In this popular book — one of the "Nature series" — the author summarizes the studies of Sprengel, Müller, Darwin, Hildebrand and others on the mutual relations between flowers and insects, considering more especially the British flora. W: T. (2528)

Lubbock, Sir J.: Common wild flowers considered in relation to insects. Address delivered at the Belfast meeting of the British association for the advancement of science. Aug. 1874. (Nature, 1874, v. 10: 17 Sept., p. 402-406; 24 Sept., p. 422-426.)

Describes, with the use of numerous figures, the mutual adaptations between flowers and insects, and the benefit resulting to both from the relations which are maintained between them. W: T. (2529)

Ludwig, Fritz. Die Befruchtung der Pflanzen durch Hülfe der Insekten und die Theorie Darwin's von der Entstehung der Arten. Inaugural-Dissertation. Bielefeld. Velhagen & Klasing, 1867. t.-p. cover, 35 p., 22×14, t 16.5×9.5.

The author shows that some flowers are adapted for constant crossing, others for occasional crossing, others for constant self-fertilization. He argues that variability and cross-fertilization are strong arguments against the Darwinian theory of the origin of species, which he believes cannot be explained in the present state of our knowledge. W: T. (2530)

MacLeod, Jules. Contribution à l'étude du rôle des insectes dans la pollinisation des fleurs hétérostyles. *primula elatior*. (Bull. de l'acad. roy. de Belgique, July 1880, s. 2, v. 50, p. 27-33.)

Abstract, with same title. (Bibliothèque universelle; Archives des sci., Oct. 1880, v. 4, p. 422-423.)

An undetermined species of *bombus*, while inserting its tongue into the flowers of *primula elatior* for nectar, transfers pollen from the long stamens to the long pistil, and from the short stamens to the short pistil, effecting legitimate unions of both sorts. *B. muscorum*, on the other hand, bites through the corolla at the level of the short stamens, and, introducing her head through the opening thus made, obtains the nectar, but in doing so merely transfers pollen from the short stamens to the short pistils, the pistils of the long-styled flowers remaining unfertilized. W: T. (2531)

McGann, T. Bees and flowers. (Science gossip, Feb. 1877, p. 44, 3 cm.)

States that *bombus* gathered nectar from *aconitum* and from *fuchsia* until September, when they were superseded by *apis mellifica*, which also gather nectar from *tritoma*. W: T. (2532)

Marshall, W. C. Fertilization by moths. (Nature, 12 Sept. 1872, v. 6, p. 393, 3 cm.)

Records the capture "on an island of less than six acres [2.4 Ha.], in the middle of Derwentwater, of 20 specimens of the common 'shark' moth (*cuclullia umbratica*); of these, seven had the pollinia of the butterfly orchis (*habenaria chlorantha*) sticking to their eyes." No plants of this orchid growing on the island, the moths must have carried the pollinia from places at least a half-mile [0.8 Km.] from that where they were taken. W: T. (2533)

Mayet, Valéry, see LICHTENSTEIN, Jules and Valéry MAYET, Étude sur le gribohouri . . . [Rec., 2524].

Michels, H. Beschreibung des Nervensystems von *oryctes* . . . [Rec., 1979].

Rev. and abstract, entitled, "Change in the nervous system of beetles during metamorphosis." (Amer. nat., Jan. 1881, v. 15, p. 58-59.) G: D. (2534)

Minot, C. Sedgwick. A sketch of comparative entomology. (Amer. nat., Dec. 1880, v. 14, p. 871-880, fig. 20-28.)

Change from larva to pupa, and from pupa to butterfly is really gradual, though apparently sudden; figures transverse section of a gastric coecum of *calopiennus spretus* illustrating use of longitudinal folds to increase the surface: insect tracheae derived from ectoderm. G: D. (2535)

Moggridge, J. Traherne. The fertilization of *fumariaceae*. (Nature, 7 May 1874, v. 10, p. 5, 15 cm.)

Describes the fertilization of *fumaria capreolata* var. *pallidiflora* by a mason-bee [*osmia*]. Also notes the visits of *apis* to *reseda phyteuma*. W: T. (2536)

Monks, Sarah P. Curious habit of a dragonfly. (Amer. nat., Feb. 1881, v. 15, p. 141.)

Larva of *aeschna* throws water for defence as well as for propulsion. G: D. (2537)

Morris, G. K. A new leaf-cutting ant. (Amer. nat., Feb. 1881, v. 15, p. 100-102.)

Description of the nest of an ant (? *atta*). G: D. (2538)

Muhr, Josef. Die Mundtheile der Insecten dargestellt auf 5 Wandtafeln. Prag, H. Dominicus, 1879. t.-p., 1 p. expl. of pl., 5 pl., in cover. 63×44, t 38×53. M. 7.32.

Figures, on a large scale, the mouth-parts of *gryllus campestris*, *carabus intricatus*, *apis mellifica*, *pieris brassicae*, *pyrrhocoris aptera* and *culex pipiens*. According to *Zool. Anzeiger*, 29 Dec. 1879, Jahrg. 2, p. 957, this is the edition of 1878, with new date. G: D. (2539)

Muhr, Joseph. Die Mundtheile der Orthoptera, ein Beitrag zur vergleichenden Anatomie. (4ter Jahresbericht über das deutsche Staats-Realgymnasium in Prag . . . 1875-1876, p. 1-16, pl. 1-2.)

General remarks upon mouth-parts of insects; special treatment of the mouth-parts of *forficulina*, *blattina*, *mantodea* and *phasmodea*; figures whole or parts of the mouth-parts of *forficula minor*, *periplaneta orientalis*, *blatta germanica* and *mantis religiosa*.

G: D. (2540)

Müller, Fritz. Ueber die Befruchtung der *martha* (*posoqueria*?) *fragrans*. (Bot. Zeitung, 27 Apr. 1866, v. 24, c. 129-133, pl. 6. A.)

Crit. rev., by C: Wright, entitled "Cross fertilization." (Amer. nat., Oct. 1868, v. 2, p. 437-440.)

Describes the structure of this Brazilian plant, and its very remarkable adaptations to cross-fertilization by insects. A note in *op. cit.*, 8 Mar. 1867, v. 25, c. 50, makes a slight correction to this article. W: T. (2541)

Müller, Fritz. Befruchtungsversuche an cipó alho, *bignonia*. (Bot. Zeitung, 25 Sept. 1868, v. 26, c. 625-629.)

States that pollination is effected by bugs, beetles, and humble-bees. The greater part of the paper consists in an account of experiments which demonstrate the self-impotence of the pollen of the species in question.

W: T. (2542)

Müller, Fritz. Habits of ants, &c. (Nature, 17 Feb. 1876, v. 13, p. 305, 16 cm.)

States that *cecropia* trees in Brazil are protected from leaf-cutting ants by other ants that are attracted to the plant by outgrowths, rich in protoplasm, at the bases of the leaf-stalks. Living in the hollow stems, this protecting army is thus kept constantly on the tree. Describes the manner of pupation of a chalcid parasite of this ant.

W: T. (2543)

Müller, Fritz. Über die von den Trichopterenlarven der Provinz Santa Catharina verfertigten Gehäuse. [Aus den] Archivs de museu national, vol. III, p. 99-134, p. 209-214. Rio de Janeiro, 1880. Aus dem Portugiesischen übersetzt von dem Bruder des Verfassers, Dr. Hermann Müller, in Lippstadt. (Zeitschr. f. wiss. Zool., 1880, bd. 35, p. 47-87, pl. 4-5.)

Describes and figures the larval-cases of a large number of larvae of *trichoptera*; with numerous biological notes.

G: D. (2544)

Müller, Hermann. Fertilization of flowers by insects. 3. On the coexistence of two forms of flowers in the same species or genus: a more conspicuous one adapted to cross fertilization by insects, and a less conspicuous one adapted to self fertilization. (Nature, 25 Sept. 1873, v. 8, p. 433-435.)

Describes the two sorts of flowers in *lysimachia vulgaris*, *euphrasia officinalis* and *rhinanthus cristo-galli*, indicating the insects which fertilize the larger flowers.

W: T. (2545)

Müller, Hermann. Fertilization of flowers by insects. 4. On the two forms of flower of *viola tricolor*, and on their different mode of fertilization. (Nature, 20 Nov. 1873, v. 9, p. 44-46.)

Describes large and small flowered forms, the former fertilized by insects, the latter occasionally visited by insects but adapted to regular self-fertilization. The flowers are figured in eight wood-cuts. Lists of the insects taken on them are given.

W: T. (2546)

Müller, Hermann. Fertilization of flowers by insects. 5. More conspicuous flowers adapted to cross-fertilization and less conspicuous ones adapted to self-fertilization, occurring in different species of the same genus. (Nature, 1 Jan. 1874, v. 9, p. 164-166.)

Compares some species of *malva*, *epilobium* and *polygonum*, which illustrate the subject in question.

W: T. (2547)

Müller, Hermann. Fertilization of flowers by insects. 6. Different modes of self-fertilization where visits of insects are wanting. (Nature, 18 June 1874, v. 10, p. 129-130.)

Discusses the fertilization of *myosurus minima* and *myosotis versicolor*; noting the insects which sometimes fertilize them, and showing how self-fertilization is secured in default of their visits.

W: T. (2548)

Müller, Hermann. Fertilization of flowers by insects. 7. Butterflies the most frequent visitors of alpine flowers. (Nature, 12 Nov. 1874, v. 11, p. 32-33.)

Shows the relative proportion of *apidae*, lepidoptera and other insects taken upon flowers at high altitudes.

W: T. (2549)

Müller, Hermann. Fertilization of flowers by insects. 8. Alpine species adapted to cross-fertilization by butterflies, while the most nearly allied species which inhabit the plain or lower mountain region are adapted to cross-fertilization by bees. (Nature, 10 Dec. 1874, v. 11, p. 110-112.)

Contrasts alpine and lowland species of *daphne*, *primula* and *rhinanthus*, showing the changes which the flowers of the alpine species have undergone to adapt them to the lepidoptera which are their most frequent visitors.

W: T. (2550)

Müller, Hermann. Fertilization of flowers by insects. 9. Alpine orchids adapted to cross-fertilization by butterflies. (Nature, 31 Dec. 1874, v. 11, p. 169-171.)

Shows that while only 12-15 per cent. of the Westphalian lowland or hill orchids are adapted to fertilization by butterflies, these insects are the chief fertilizers of alpine species, 60-80 per cent. of which show special modifications by which they are enabled to profit by the visits of butterflies.

W: T. (2551)

Müller, Hermann. Fertilization of flowers by insects. 10. *Lilium martagon*. (Nature, 20 May 1875, v. 12, p. 50-51, 35 cm.)

Shows that the flowers are adapted to fertilization by diurnal lepidoptera, and shows how this is effected by *macroglossa stellatarum* in the Vosges.

W: T. (2552)

Müller, Hermann. Fertilization of flowers by insects. 11. Adaptation of flowers to lepidoptera: *Hesperis tristis*. (Nature, 8 July 1875, v. 12, p. 190-191.)

Shows the flowers of this plant to be suited to fertilization by nocturnal moths, and records those taken upon it. W: T. (2553)

Müller, Hermann. Fertilization of flowers by insects. 12. Further observations on alpine flowers. (Nature, 13 Jan. 1876, v. 13, p. 210-212.)

Remarks further on the plants considered in no. 11 of this series of papers [Rec., 2553], and in addition discusses the adaptation of *rhinanthus alpinus* to fertilization by butterflies, and of *rh. alectorolophus* by *bombus* and butterflies. W: T. (2554)

Müller, Hermann. Fertilization of flowers by insects. 13. Additional alpine flowers adapted to cross-fertilization by lepidoptera. (Nature, 10 Feb. 1876, v. 13, p. 289-292.)

Shows the adaptation of *viola calcarata* and *lilium bulbiferum* to fertilization by butterflies, and notes their visitors, contrasting them with *v. tricolor* and *l. martagon*. W: T. (2555)

Müller, Hermann. Fertilization of flowers by insects. 14. Flowers fertilized by the wings of butterflies. (Nature, 22 June 1876, v. 14, p. 173-175, 4 fig.)

Shows that the flowers of a Brazilian *hedychium* are cross-fertilized in the manner indicated; records their visitors, from the observations of Fritz Müller. W: T. (2556)

Müller, Hermann. Fertilization of flowers by insects. 15. Alpine species of gentian. (Nature, 8 Feb. 1877, v. 15, p. 317-319.)

Shows that of alpine gentians one has nectar accessible to insects of all orders, some are adapted to fertilization by *bombus*, while many are adapted to lepidoptera. W: T. (2557)

Müller, Hermann. Fertilization of flowers by insects. 16. Alpine species of *gentiana* adapted to lepidoptera. (Nature, 29 Mar. 1877, v. 15, p. 473-475.)

Discusses the fertilization of several species, enumerating their visitors. Traces the probable descent of German and Swiss gentians, by aid of a sort of ancestral tree. W: T. (2558)

Müller, Hermann. On the fertilization of flowers by insects and on the reciprocal adaptations of both. [1.] (Nature, 3 July 1873, v. 8, p. 186-189.)

Shows how *apis* and *bombus* obtain the nectar of flowers. Figures the mouth-parts of *apis* and of three species of *bombus*. This and the succeeding articles bearing the same title are taken in large part from the author's "Die Befruchtung der Blumen . . ." [Rec., 2045]. W: T. (2559)

Müller, Hermann. On the fertilization of flowers by insects and on the reciprocal adaptations of both. 2. In what manner the hive- and humble-bees obtain the honey of the flowers. (Nature, 10 July 1873, v. 8, p. 205-206.)

Shows how bees obtain nectar properly and by violence. W: T. (2560)

Müller, Hermann. [Fertilization of flowers: literature of 1873.] (Bot. Jahresbericht . . . Just. [1874], v. 1, p. 360-378.)

As editor of this department of the annual named, Dr. Müller reviews 17 books and papers relating to pollination. W: T. (2561)

Müller, Hermann. [Fertilization of flowers: literature of 1874.] (Bot. Jahresbericht . . . Just. [1876], v. 2, p. 880-903.)

Reviews 18 books and papers relating to the pollination of flowers. W: T. (2562)

Müller, Hermann. [Fertilization of flowers: literature of 1875.] (Bot. Jahresbericht . . . Just. [1877], v. 3, p. 903-909.)

Reviews 14 books and papers on the fertilization of flowers. W: T. (2563)

Müller, Hermann. [Fertilization of flowers: literature of 1876.] (Bot. Jahresbericht . . . Just. [1878], v. 4, p. 935-948.)

Notices 34 books and articles concerning the fertilization of flowers, and the general relations between flowers and animals. W: T. (2564)

Müller, Hermann. [Fertilization of flowers: literature of 1877.] (Bot. Jahresbericht . . . Just. [1879], v. 5, p. 732-755.)

Reviews 45 papers on the mutual relations between flowers and insects, etc. W: T. (2565)

Müller, Hermann. [Fertilization of flowers: literature of 1878.] (Bot. Jahresbericht . . . Just. [1880-1881], v. 6, p. 303-329.)

Notices 47 papers on the pollination of flowers, etc. W: T. (2566)

Müller, Hermann. [Fertilization of flowers: literature of 1879-1880.] (Bot. Jahresbericht . . . Just. [1881], v. 7, p. 92-150.)

Notices 128 publications on the pollination of flowers, etc. W: T. (2567)

Müller, Hermann. Fertilization of the *fumariaceae*. (Nature, 16 April 1874, v. 9, p. 460-461, 23 cm.)

Discusses the changing color of certain flowers, and especially of fumitory, in its bearing upon their fertilization. W: T. (2568)

Müller, Hermann. The fertilization of *fumariaceae*. (Nature, 7 May 1874, v. 10, p. 5, 11 cm.)

Discusses the change in color which the flowers of a fumitory undergo, in its bearings on their insect fertilization. W: T. (2569)

Müller, Hermann. Ground ivy. (Nature, 26 June 1873, v. 8, p. 161-162, 11 cm.)

Shows how gyno-dioecism may have been acquired in flowers through natural selection. Records the insect visitors of *thymus serpyllum* and *nepeta glechoma*. W: T. (2570)

Müller, Hermann. Die Insecten als unbewusste Blumenzüchter [Rec., 1642].

Abstract, by W: Trelease, entitled "Insects as unconscious selectors of flowers." (Amer. nat., Apr. 1879, v. 13, p. 257-260.)

W: T. (2571)

Müller, Hermann. Nectar, its nature, occurrence and uses. (Bot. Zeitung, 29 Oct. 1880. v. 38, c. 748-749, 24 cm.)

Abstract of paper by W. Trelease, with same title, in J. H. Comstock's "Report on cotton insects." [See Rec., 2475.] W: T. (2572)

Müller, Hermann. Probosces capable of sucking the nectar of *angraecum sesquipedale*. (Nature, 17 July 1873, v. 8, p. 223, 16 cm.)

Describes and figures the proboscis of a Brazilian sphinx 0.25 metre long;—as an indirect answer to W. A. Forbes' "Fertilization of orchids" (Nature, 12 June 1873, v. 8, p. 121) [Rec., 2400]. W: T. (2573)

Müller, Hermann. *Saxifraga umbrosa* adorned with brilliant colors by the selection of *syrphidae*. (Nature, 8 July 1880, v. 22, p. 219.)

Reprint. (Botanical gazette, Sept. 1880, v. 5, p. 93-94, 11 cm.)

Reprint, with comments. (Bull. Torrey bot. club, Sept. 1880, v. 7, p. 99-100, 15 cm.)

Attributes the beautiful variegation of these flowers to the unconscious selection of certain *syrphus* flies which serve as agents for their cross-fertilization.

W: T. (2574)

Müller, Hermann. Die Wechselbeziehungen zwischen den Blumen und den ihre Kreuzung vermittelnden Insekten. (Aus "Encyclopädie der Naturwissenschaften. Abtheil. 1, Theil 1, 'Schenk's Handbuch der Botanik.'") Breslau, Trewendt, 1879. 112 p., 25×16.5, t 21×12; 32 fig.

Abstract, by W. Trelease, entitled "The mutual relations between flowers and the insects which serve to cross them." (Amer. nat., July 1879, v. 13, p. 451-452.)

Abstract, by F. Delpino, under title "Rapporti tra fiori e pronubi." (Rivista bot., 1879, p. 50-53.)

Abstract, by author, under same title. (Bot. Jahresbericht . . . Just, 1879, v. 7, p. 97-99.)

A popularly written exposition of the mutual relations between flowers and animals, especially insects.

W: T. (2575)

Müller, Hermann. Weitere Beobachtungen über Befruchtung der Blumen durch Insekten. 1. (Verhandl. des naturhist. Vereins der preuss. Rheinl. und Westfälens, 1878, jahrg. 35, folge 4, jahrg. 5, p. 279-323, pl. 6.)

Separate, with same title. Berlin, R. Friedländer & Sohn, 1879. t.-p., 59 p., 22×14, t 17.5×9.5; 1 pl., 22×17.

Ital. tr. of greater portion, with comments, by F. Delpino, entitled "Altre osservazioni intorno a piante zoidiofile." (Rivista bot., 1879, p. 53-61.)

Additional observations on the pollination of plants studied in the author's "Die Befruchtung der Blumen" [Rec., 2045], with the addition of a few not mentioned in that work. Records the visits of many insects.

W: T. (2576)

Müller, Hermann. Weitere Beobachtungen über Befruchtung der Blumen durch Insekten. 2. Mit zwei Tafeln. [Separat aus Verhandl. d. naturhist. Vereins d. preuss. Rheinl. u. Westfälens, jahrg. 36.] Berlin, R. Friedländer & Sohn, 1880. t.-p. cover, t.-p., p. 197-268; pl. 2-3, 22×14, t 17×9.3, pam., M. 2.50.

Notice, by Sickmann. (Entom. Nachrichten, 1880, jahrg. 6: 1 Apr., Lit. Rev., p. 36; 15 May, Lit. Rev., p. 43.)

Additions to the author's "Die Befruchtung der Blumen durch Insekten" . . . [Rec., 2045.] G: D. (2577)

Mundt, A. H. Notes upon climatic influences on *samia gloveri* of Utah and *s. ceanothi* of California. (Can. entom., Feb. 1881, v. 13, p. 35-37.)

Effect of differences of temperature and moisture on the larvae and pupae of the above-mentioned species.

G: D. (2578)

N., N. Besitzt die cyprische Biene entschiedene Vorzüge? (Deutsch. Bienenfreund, 15 June 1880, jahrg. 16, p. 181.)

Answer and crit. rev., by J. Stähala, entitled "Der Entscheidungskampf wegen der Leistungsfähigkeit der cyprischen Biene." (Deutsch. Bienenfreund, 15 Jan. 1881, jahrg. 17, p. 23-28.)

Objections to Cyprian bees. G: D. (2579)

Note on nutgalls. (New remedies, Feb. 1881, v. 10, p. 53, 11 cm.)

Statistical and other notes on *cynips quercus-folii* and its galls on *quercus infectoria*, from Karl Scherzer's "Smyrna" G: D. (2580)

Olivier, Ernest. La chrysomèle des pommes de terre, *doryphora decemlineata*, mœurs, histoire, moyens de destruction. 2ème édition. Besançon, 1878. t.-p. cover, 35 p., 1 pl., 19×12, t 13×7.7.

Rev. (Nouv. et faits divers de l'Abeille, 1878, no. 18, p. 70.)

D. decemlineata, its classification, nomenclature, history of its spread in America and introduction into Europe, description and figures of its various stages, means to use against it, and its natural enemies.

G: D. (2581)

Osborn, Herbert. Food habits of *saperda cretata*. (Amer. nat., March 1881, v. 15, p. 244.)

Mode of egg-laying, and way in which the larva feeds on apple trees. G: D. (2582)

Overrated ant (The). From Mark Twain's new book "A tramp abroad." (Springfield [Mass.] d. republican, 26 May 1880, p. 8, col. 3, 28 cm.)

Humorous account of the labors of ants. G: D. (2583)

Packard. Alpheus Spring, *jr.* Bibliography of economic entomology. (Can. entom., Feb. 1881, v. 13, p. 39.)

Preliminary notice of a proposed bibliography of economic entomology to be prepared by the United States entomological commission. Essentially the same as "[Bibliography of economic entomology]" (Amer. nat., Jan. 1881, v. 15, p. 84) [Rec., 2225].

G: D. (2584)

Packard. Alpheus Spring, *jr.* *Cetonia inda*. (Amer. nat., Nov. 1880, v. 14, p. 806.)

C. inda injures corn [*zea mays*] in Massachusetts.

G: D. (2585)

Packard. Alpheus Spring, *jr.* Eggs of the tree cricket wanted. (Amer. nat., Nov. 1880, v. 14, p. 804.)

Desires eggs of *ocanthus*. G: D. (2585)

Packard. Alpheus Spring, *jr.* Fauna of the Luray and Newmarket caves, Virginia. (Amer. nat., March 1881, v. 15, p. 231-232.)

Notes on various insects found in these caves.

G: D. (2587)

Palmén, Joh. Axel. Zur Morphologie des Tracheensystems. Mit 2 lithographirten Tafeln. Helsingfors, J. C. Frenckell & Sohn, 1877. t.-p. cover, 10+149 p., 23×14. t 16×9.5; 2 pl.

Crit. rev., by H. A. Hagen, entitled, "Beitrag zur Kenntniss des Tracheensystems der Libellen-Larven." (Zool. Anzeiger, 5 April 1880, jahrg. 3, p. 157-161.)

Treats of the tracheal system, of tracheal gills, of the formation of stigma in the *ephemeridae*, *perlidae*, *libellulidae*, *trichoptera* and *sialis*, and in certain species of diptera, hymenoptera, lepidoptera and coleoptera; general considerations upon closed tracheal systems and the formation of stigmata in them; the open tracheal system. G: D. (2588)

Plant-feeding habits of predaceous beetles. (Amer. nat., April 1881, v. 15, p. 325-327.)

Zabrus gibbus, *megilla maculata*, *coccinella novemnotata*, *brachyacantha ursina*, *hippodamia convergens*, *epilachna borealis*, *harpalus caliginosus* and species of *galerita*, *loxopeza*, *calathus*, *anisodactylus*, *amara*, *cratachanthus*, *evarthrus*, *pterostichus*, *chlaenius* and *bradycellus*, have been found to eat vegetable food. Compiled from papers of F. M. Webster, S. A. Forbes, W. Trelease, W. A. Buckhout and others.

G: D. (2589)

Protection against flies and mosquitoes (A). (Springfield [Mass.] d. republican. 26 July 1880, p. 2, col. 6. 6 cm.)

A correspondent (in *Nature*) recommends a weak decoction of quassia chips to keep flies and mosquitoes from the face, and to keep insects out of beds.

G: D. (2590)

Puton. A. Mœurs des *hister*. (Feuille des jeunes naturalistes, 1 Dec. 1880, an. 11, p. 30.)

Hister belluo devours larvae of *agelastica alni*.

G: D. (2591)

Raabe.— Die Ueberwinterung der Bienen. (Deutsch. Bienenfreund. 1881, jahrg. 17: 1 Feb., p. 34-40; 15 Feb., p. 51-57. 1 fig.)

How to keep bees healthy through the winter.

G: D. (2592)

Raulin.— Du sommeil de la chrysalide chez diverses espèces de *bombyx*. Lyon, 1879. t.-p. cover, 2 t.-p., p. 11-18, 26×17, t 17.5×10.4.

Paper read before the Société d'agriculture, histoire naturelle et arts utiles de Lyon, on 20 Nov. 1878. The author concludes from experiments made upon the chrysalids of *bombyx Cynthia*, with electricity and by subjecting the chrysalids to various degrees of cold, that "there is a great analogy between the physiological phenomena of the life of the chrysalids and of that of the eggs of *bombyx*; the sleep and the reawakening of the chrysalids resemble very much the sleep and reawakening of the eggs. In this sense one can say that the chrysalis is to the butterfly as the egg is to the larva." G: D. (2593)

Reed, Edmund Baynes, *ed.*, see CANADIAN ENTOMOLOGIST (The).

Reichenau, Wilhelm. Zur Kenntniss der Feinde schädlicher Krautraupen. (Entom. Nachrichten, 1 Feb. 1881, jahrg. 7, p. 50-51.)

Proportion which the number of chrysalids of *pietris rapae* and *p. brassicae* bear to the number of their parasites (*ichneumon* and *pteromalus putorum*).

G: D. (2594)

Reilly, Robert B. Let the cockroach giggle! Song and chorus. *Illustr. words and music*. New York, 1881. 5 p., 4^o.

The chorus reads:

Then let the cockroach giggle in his corner on the floor,
And the red ant in the closet laugh away;

While the old daddy-long-legs in the centre parts his hair,

From childhood's home I never long can stray.

S: H. S. (2595)

Riley, C: Valentine. The Colorado beetle, with suggestions for its repression and methods of destruction. Lond. G: Routledge & Sons, 1877. 123[+adv.] p. [incl. 1 pl.], 17×10.5, t 13×7.5.

Doryphora decemlineata; its past history, its native home, rate and mode of its invasion, causes which limit its spread, how it has affected the price of potatoes, the modifications it has undergone, its natural history, its poisonous qualities, its food plants, its natural enemies, remedies, use of Paris green, alarm about the insect abroad, nomenclature, the bogus Colorado potato-beetle (*d. juncta*).

G: D. (2596)

[**Riley,** C: Valentine.] Hibernation of the cotton-worm moth: ease with which mistakes are made. (Amer. nat., March 1881, v. 15, p. 244-245, 3 fig.) (Separate [General notes; entomology], from Amer. nat., Mar. 1881, p. 244-245, 3 fig.)

Quotes letter from I. A. Wimbish, in which the writer has sent a specimen of *leucania unipuncta* supposing it to be *altia argillacea*. How to recognize *altia*. Figures ovipositor and eggs of *l. unipuncta* and imago of both species. G: D. (2597)

Riley, C: Valentine. Insectivorous plants. (Amer. nat., Nov. 1874, v. 8, p. 684-687) [Rec., 285].

Reprint, with figure, and same title. (Science gossip, 1874, p. 272-275, fig.)

Is in the main a résumé of the author's "On the insects more particularly associated with *sarracenia variegata*..." (Proc. Amer. assoc. advanc. sci., 1874, v. 23, pt. 2, p. 18-25) [Rec., 576; see also Rec., 143c]. Treats of the insects captured by *sarracenia*, and of those which enter and leave the pitchers at will. W: T. (2598)

Riley, C: Valentine. Insectivorous plants. (Science gossip, 1874, p. 272-275, fig.)

Reprint of Riley's "Insectivorous plants" (Amer. nat., Nov. 1874, v. 8, p. 684-687) [Rec., 285, 2598], with the addition of one or more figures. W: T. (2599)

Riley, C: Valentine. Larval habits of beetles, *bombyliidae*. (Amer. nat., Feb. 1881, v. 15, p. 143-145, fig. 1-3.) (Separate [General notes; entomology], from Amer. nat. Feb. 1881, p. 143-145, fig. 1-3.)

Habits of *systoechus* and *triodites* as parasites on locusts' eggs, and notice of T. A. Chapman's "On the economy... of *bombylius*" (Entom. in. mag., Feb. 1878), which records *bombylius major* as a parasite of *andrena labialis*. Figures larva, pupa and imago of *systoechus orcas*. G: D. (2600)

Rothrock, J. T. The fertilization of flowering plants. (Amer. nat., Apr. 1867, v. 1, p. 64-72.)

Describes some of the contrivances by which flowers profit by the visits of insects. Does not mention any insect visits on his own authority. W: T. (2601)

Rudow, —. Eine Missbildung von *musca domestica*. (Entom. Nachrichten, 1 March 1881, Jahrg. 7, p. 84.)

A fly with three wings and three halteres. G: D. (2602)

Saison-Dimorphismus der Schmetterlinge (Ueber den). (Entom. Nachrichten, 1875, Jahrg. 1: 1 May, p. 69-75; 15 May, p. 77-78.)

Abstract of A. Weismann's "Studien zur Descendenz-Theorie. I. ..." [Rec., 2617]. G: D. (2603)

Saunders, W., ed., see CANADIAN ENTOMOLOGIST (The).

Saunders, W: Annual address of the president of the entomological society of Ontario. (Can. entom., Oct. 1880, v. 12, p. 189-197.)

Devoted to economic entomology; deals with insectivorous birds, and insects which are parasitic on injurious insects; the species on which notes are chiefly given are *pietis rapae*, its parasite (*pteromalus puparum*), *attacus luna*, *bruchus pisi*, the plum weevil (*conotrachelus neuphar*), *monohammus confusor*, *m. scutellatus*, *epicauta pensylvanica*, the oyster-shell barklouse [*mytilaspis pomticorticis*] found on currant [*ribes*], *chilocampa sylvatica* and *macroductylus subspinus*. See W: Saunders' "Correction" (Can. entom., Dec. 1880, v. 12, p. 262-263) [Rec., 2605]. G: D. (2604)

Saunders, W: Correction. (Can. entom., Dec. 1880, v. 12, p. 262-263.)

Corrects a statement in regard to *epicauta pensylvanica* in his "Annual address of the president of the entomological society of Ontario" (*op. cit.*, Oct. 1880, v. 12, p. 189-197) [Rec., 2604]. G: D. (2605)

Saunders, W: Entomology for beginners. (Can. entom., Jan. 1881, v. 13, p. 1-2.)

Treats of *euryomia inda* and *thyreus abbotii*. G: D. (2606)

Saunders, W: Entomology for beginners. On two mites. (Can. entom., Nov. 1880, v. 12, p. 237-239.)

Notes on *tetranychus telarius* and *tyroglyphus siro*. G: D. (2607)

Schilde, Johannes. Gegen pseudodoxische Transmutationslehren, ein entomolog. Nachweis irrigiriger Studien zur Descendenztheorie. Leipzig, Otto Wigand, 1879. t-p. cover, 4+154 [+2] p., 23X15. t 17X10. pam., M. 2.50.

Crit. rev. by F. Katter. (Entom. Nachrichten, 15 Nov. 1879, Jahrg. 5, p. 301-302.)

Reply to Katter's crit. rev., by Schilde [with note by Katter]. (Entom. Nachrichten, 1 Jan. 1880, Jahrg. 6. Lit. Rev., p. 6-8.)

Crit. rev. of A. Weismann's "Studien zur Descendenz-Theorie. I. ..." [Rec., 2617]. G: D. (2608)

Schwarz, Eugene Amandus. Biological note on *euplectrus comstockii* Howard. (Amer. nat., Jan. 1881, v. 15, p. 61-63.) (Separate [General notes; entomology], from Amer. nat., Jan. 1881, p. 61-63.)

Separate. [Phil., 1881, p. 61-63, t 17 X 11.2.

Habits of *e. comstockii*, which is parasitic on larva of *aletia argillacea*. G: D. (2609)

Silkworm raising in Russia. (Journ. applied sci., March 1881, v. 12, p. 43, 7 cm.) Statistical. G: D. (2610)

Spaulding, Justin. The bee's tongue, and glands connected with it. (Amer. nat., Feb. 1881, v. 15, p. 113-119, 5 fig.)

Figures and describes a gland in the head and thorax of *apis mellifica*, and the mouth parts of the same insect. G: D. (2611)

[**Spider-bite.**] (New England homestead, 3 July 1880, p. 3, col. 6, 1 cm.)

Records a fatal spider-bite. G: D. (2612)

Trelease, W: The fertilization of alpine flowers. (Bull. Torrey bot. club, Feb. 1881, v. 8, p. 13-14.)

Review of H. Müller's "Alpenblumen. ..." [Rec., 2175]. W: T. (2613)

Trelease, W.: The mutual relations between flowers and the insects which serve to cross them. (Amer. nat., July 1879, v. 13, p. 451-452.)

Abstract of H: Müller's "Die Wechselbeziehungen zwischen den Blumen und den ihre Kreuzung vermittelnden Insekten" [Rec., 2575]. H: T. (2614)

Trelease, W.: Plant-feeding ground-beetles. (Amer. entom., Oct. 1880, v. 3, n. s., v. 1, p. 251, 8 cm.)

Finds large numbers of the carabid, *harpalus caliginosus*, feeding on the green fruit of *ambrosia artemisiifolia*. H: T. (2615)

Weale, J. P. Mansel. Some observations on the fertilization of *disa macrantha*. (Journ. Linn. soc., Bot., 23 Nov. 1870, v. 13, p. 45-47.)

Believes the flowers adapted to fertilization by diurnal and nocturnal insects, but has not proved this by direct observation. H: T. (2616)

Weismann, August. Studien zur Descendenz-Theorie. 1. Ueber den Saison-Dimorphismus der Schmetterlinge. Mit 2 Farbendrucktafeln. [Separat aus Annali del Museo civico di storia naturale di Genova, 1874, v. 6.] Leipzig, W. Engelmann, 1875. t.-p. cover, 4+95 p., 2 col. pl., 26X17, t 18 X10. pam., M. 4.

Abstract, entitled, "Ueber den Saison-Dimorphismus der Schmetterlinge." (Entom. Nachrichten, 1875, Jahrg. 1: 1 May, p. 69-75; 15 May, p. 77-78.)

Notice. (Entom. Nachrichten, 1 Apr. 1877, Jahrg. 3, p. 59.)

Crit. rev. (J. Schilde's "Gegen pseudo-doxische Transmutationslehren" . . . [Rec. 2608].)

Engl. tr., by R. Meldola, with prefatory notice by C: Darwin, entitled "Studies in the theory of descent. Part 1. On the seasonal dimorphism of butterflies." With original communications by W: H: Edwards. Lond., Sampson Low, 1880. Svo., with 2 col. pl. 8 sh.—[Record compiled from notices in Naturae novitates, March 1880, p. 51; Amer. nat., June 1880, v. 14, p. 468; and Zool. Anzeiger, 23 Aug. 1880, Jahrg. 3, p. 410.]

Discusses the meaning, origin, and causes of seasonal dimorphism, and the relation of seasonal dimorphism to climatic varieties and to alternation of generation. The plates illustrate forms of *vanessa levana*, *piearis napi*, *papilio ajax*, *lycaena agestis*, *polyommatus phlaeas* and *pararga aegeria*. G: D. (2617)

What the birds eat. (Springfield [Mass.] d. republican, 13 Aug. 1880, p. 3, col. 1, 25 cm.)

Abstract of a paper read at a meeting of the Ontario agricultural commission by "William E. Saunders, the well-known Canadian ornithologist." Abstract consists mostly of notes on the kinds of insects eaten by different birds. G: D. (2618)

White, F. Buchanan. Winter fertilization by agency of insects. (Journ. of botany, 1872, v. 10, n. s., v. 1, p. 48, 8 cm.)

Criticises certain statements in W. E. Hart's "Winter fertilization" (Journ. of botany, 1872, v. 10, n. s., v. 1, p. 25-25) [Rec., 2425], in regard to the abundance of insects on flowers in winter. H: T. (2619)

Wilson, A. Stephen. On the association of an inconspicuous corolla with proterogynous dichogamy in insect-fertilized flowers. (Rept. British assoc. advanc. sci., 1878, p. 564-567.)

Shows that the inconspicuous proterogynous flowers of *scrophularia* are fertilized by wasps, which visit them for their nectar. From numerous observations he concludes that as a rule these insects begin with the uppermost flower, and work downward, instead of starting with the lowest and working upward as bees do. Since a part of their food consists of living prey, likely to elude them in many cases, the writer believes their powers of perception to be more acute than those of bees; hence they should find flowers so inconspicuous as to be overlooked by bees, and as the latter, from their order of visiting the flowers, would effect close fertilization within a given plant in the case of proterogynous species, instead of crossing the flowers of different plants, he concludes that it is advantageous to many proterogynous plants to have inconspicuous flowers, which would be found only by the wasps upon which they rely for their pollination. H: T. (2620)

Wilson, A. Stephen. Some mechanical arrangements subserving cross-fertilization of plants by insects. (Rept. British assoc. advanc. sci., 1878, p. 568, 5 cm.)

Shows the use of floral peculiarities of *vinca*, *pinguicula* and *digitalis*. Does not record any insect visits. H: T. (2621)

Wright, C. Cross fertilization. (Amer. nat., Oct. 1868, v. 2, p. 437-440.)

Describes structure of flowers of *posoqueria*, by which cross-fertilization by the aid of insects with long proboscis is secured and close-fertilization prevented. Criticises Fritz Müller's studies in his "Ueber die Befruchtung der *martha* (*posoqueria?*) *fragrans*" (Bot. Zeitung, 27 Apr. 1866, v. 24, c. 120-133) [Rec., 2541], on a Brazilian species of *posoqueria*. H: T. (2622)

Yeoman, D. S. [Cork linings for insect cases.] (Bull. Brooklyn entom. soc., 1878-1879, [v. 1], p. 8, 12, 24, 32, 40, 51, 60, 68, 76, 84, 92.)

Advertisement.

B: P. M. (2623)

Young, H. W. Fertilization of *gerardia flava*, L. (Bulletin Torrey bot. club. Sept. 1873, v. 4, p. 41, 5 cm.)

Describes the actions of a hive-bee [*apis mellifica*] while collecting pollen. H: T. (2624)

Zoological notes. (Amer. nat., Oct. 1880, v. 14, p. 739-740.)

Includes statement by W. S. Ball, that swarms of *apis mellifica* destroyed nearly half his grapes; notices of descriptions of the stridulating organs of *arachnida*, and of descriptions, by Keyserling, of new species of *arachnida* from the U. S. and from S. A.

B: P. M. (2625)